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ABSTRACT

The constitution of the Commonwealth of Pennsylvania includes a provision mandating a quality education for each child in the Commonwealth. This is the first of six units designed for administrators and teachers to serve the Environmental Goal, one of Pennsylvania's Twelve Goals of Quality Education. The goal states that quality education should help every student acquire the knowledge and attitudes necessary to maintain the quality of life in a balanced environment. The major objective of the unit is to learn about the ideal image of environmental education in terms of major assumptions, values, objectives, and processes. Upon completing the unit, teachers/administrators should have an integrated or composite image of environmental education to provide a working framework for involvement in this area. To meet the unit's objective, background information, rationale for, and goals of environmental education are discussed in the content portion of the unit. The interdisciplinary, holistic, and problem-solving/issue-oriented nature of environmental education is also discussed. (Author/JN)

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Identifying Environmental Education

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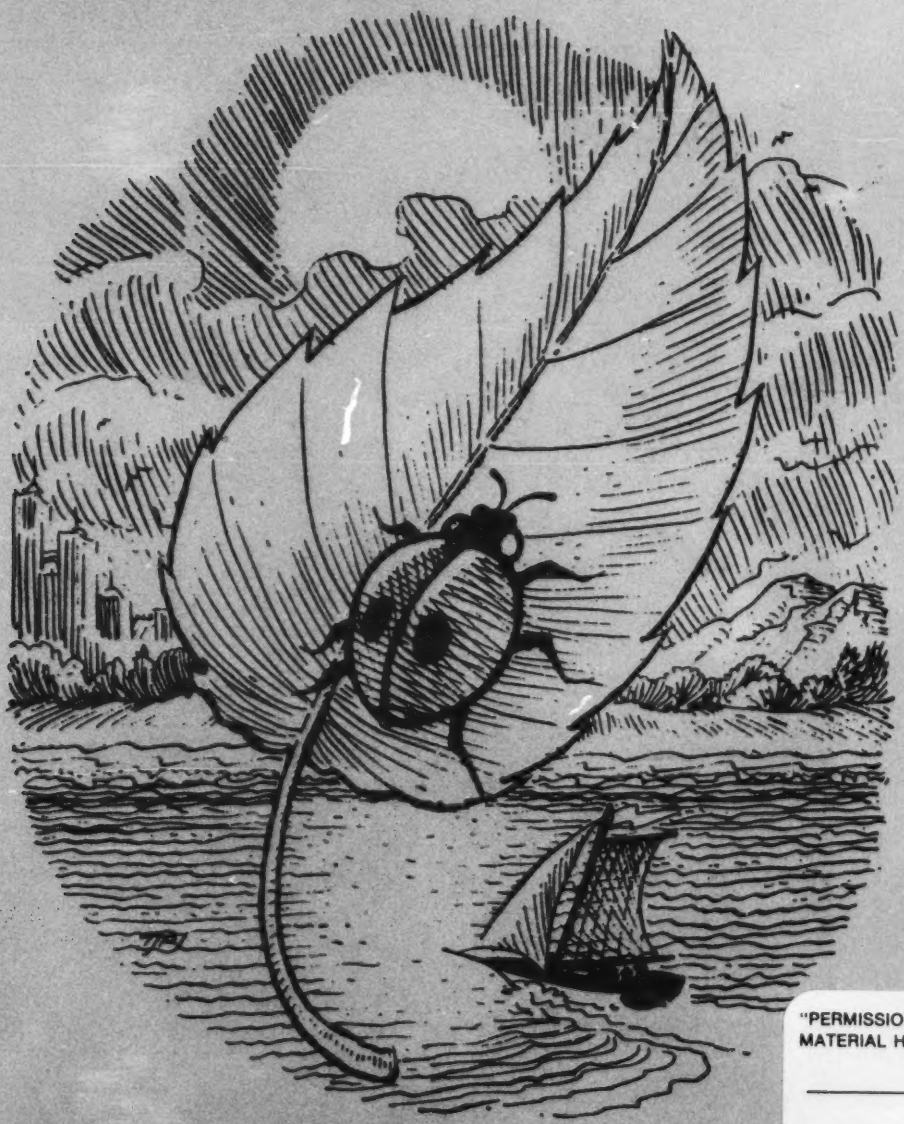

Unit 1 of 6

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Pennsylvania Department of Education 1982

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FORWARD

During the past two years you have heard of my commitment to making "every school in Pennsylvania a good school." A good school has to be part of an educational system which has goals and expectations for students and a process for delivering those outcomes to students.

The continuity of goals, expectations for students and instructional practices must be supported at the state level. Therefore, I have committed the Department of Education to establishing and promoting a direct linkage among the Goals of Quality Education, expectations for students, the curriculum regulations and standards. This linkage will be developed as a primary data base. During 1982, we will seek to have the linkages formalized through a new set of curriculum regulations and standards to support our Goals of Quality Education.

This booklet contains a summary of our progress to date in defining some essential environmental learning outcomes for our students. I am pleased to share this progress report with you as it reflects: (1) the content base for our school improvement efforts; (2) the conceptual framework for school improvement efforts in curriculum for the next decade; and (3) evidence that a variety of partners in education can work together toward improving education for the children and youth of the Commonwealth.

Robert G. Scanlon
Secretary of Education

GOALS OF QUALITY EDUCATION
Preamble

The constitution of the Commonwealth of Pennsylvania states, "The General Assembly shall provide for the maintenance and support of a thorough and efficient system of public education to serve the needs of the Commonwealth." This provision mandates a quality education for each child in the Commonwealth.

The schools have the primary responsibility for the achievement of the goals of quality education as established by the State Board of Education, but they must work in close and continuous cooperation with the family, community and other appropriate social, religious and governmental institutions to insure the highest possible achievement of the goals.

To foster achievement of a quality education, the school environment should be safe, attractive and orderly, promote a willingness to work for objectives, stimulate a readiness to continue learning throughout life, and encourage the fullest possible educational development of each student.

To foster achievement of a quality education, the school program should reflect the Twelve Goals of Quality Education.

This series of six units is designed for administrators and teachers to serve the Environment Goal:

Quality education should help every student acquire the knowledge and attitudes necessary to maintain the quality of life in a balanced environment.

The six units include:

Unit I	Identifying Environmental Education
Unit II	Implications of Developmental Theory for Designing Environmental Education Curriculum
Unit III	Merging Content and Context with Process, Emphasizing Relations
Unit IV	An Analysis of the Curriculum Development Process
Unit V	Developing Environmental Education Curriculum Material and Selected Sources of E/E Instructional Material
Unit VI	An Implementation Model for Secondary School Instructional Programs

IDENTIFYING ENVIRONMENTAL EDUCATION

OBJECTIVE

To learn about the ideal image of Environmental Education (EE) in terms of major assumptions, values, objectives, and processes.

OUTCOMES:

Upon completing this unit you should have an integrated or composite image of EE both described in words and available in your own mind to provide a working framework for your involvement in Environmental Education.

The Content of the Unit

During the past decade there has been a growing public concern over the rapidly deteriorating state of our environment and the threat this deterioration poses for our survival. Despite this concern, the central problems of our environment - and their possible solutions - have continued to be obscured by many attempts both to exploit and to safeguard the environment. Compounding this situation further have been the frequent failures of investigators to study environment problems from a sufficiently broad and holistic perspective and to propose solutions to environmental problems that transcend their discipline-bound and specialized perspectives.

Just as the natural environment and the human settlements within it are complex and interrelated, the environmental crisis involves a complex and interrelated set of problems that will continue to face the nation and the world throughout this century and beyond. Therefore, the public and their leaders will continually be called upon to decide how they should deal with a variety of complex environmental issues.

Sensitivity to the complexity of these issues was demonstrated in the legislated mandate of the Environmental Education Act of 1970 (Public Law 91-516). According to the EE Act, environmental education should deal with:

> "...man's relationship with his natural and manmade surroundings, and includes the relation of population, pollution, resource allocation and depletion, conservation, transportation, technology, and urban and rural planning to the total human environment."

In a subsequent amendment to the EE Act in 1974 (Public Law 93-278), the areas of economics and energy were added to the list of major factors to be interrelated in environmental education. A graphic representation of this definition is presented in Figure 1.

Environmental education[1] cannot be developed and advanced unless it can be perceived in relation to the whole of education. If it can be seen in relation to this whole, then questions of how to integrate it, how to resolve role assignments or career directions, how to relate subject matter, how to balance the allocation of resources across various objectives, all can be dealt with through modest changes in the prevailing frameworks of education.

Let us, therefore, perceive the whole of education from the standpoint of three great purposes. These may be stated as follows:

- To put the learner in possession of his or her cultural inheritance
- To enable the learner to participate in the contemporary world
- To qualify the learner to contribute to the civilization of the future.

We may view each of these three great purposes of education as overarching the whole of educational experience, in the sense that they span the past, the present, and the future. Within this framework, no discipline can claim sole jurisdiction. The routes toward achievement of these purposes are varied. The emphasis differ from discipline to discipline. The elaboration of these purposes into the vast realms of human knowledge has produced the educational systems that we have today.

Within our present educational system, however, knowledge is carved up into many different disciplines and subject matters. Students face an overwhelming array of courses, topics, and concepts from which they are implicitly expected to construct a whole and satisfactory understanding of our world. In this situation, how are we to accomplish the third great purpose "to qualify the learner to contribute to the civilization of the future?" Are we to subject the person to a study of parts, assuming thereby that at some point in life a miraculous capacity will suddenly appear that enables the person to understand the whole?

We have been advised by the philosopher, Alfred North Whitehead, that we can never fully understand anything. Some part of the knowledge is always denied us because we are finite humans. But this truth was not offered as a reason to avoid the effort to comprehend how the fragments of our world relate to each other. Rather it serves to alert us to the difficulty of such an endeavor, and should suggest to us that studies aimed specifically at understanding interactions should become a part of our qualification to contribute to the civilization of the future.

If we do not doubt the three great purposes of education, we may nonetheless suspect that, lacking the capacity to integrate, to see interrelationships adequately, we will forever lack the balanced emphasis in education that carries these three purposes as far as possible within available resource and human limitations. Thus, there will always be room for improvement, for adjustment of educational goals and of emphases. And if, in education, we can make advances in our understanding of the complexity of things, how these complexities function within our influence the wholes, and how we, as individuals, can "contribute to the civilization of the future" by the decisions we make as participants in the "contemporary world," then we can truly say that we are preparing people to be responsible citizens.

While we cannot go back and explore in detail the reasoning of the U.S. Congress when the Environmental Education Act of 1970 was passed, it is not a great leap from the wording of the Act to the conclusion that the Congress had in mind something similar to the point expressed in the preceding paragraphs.

The emphasis on relationships, on a "process dealing with...relationships," on "relation...to the total human environment," all point toward development of a functional grasp of the whole as opposed to a fragmented consideration of the parts.

Environmental education should be perceived as contributing to the three great purposes of education stated previously, with emphasis upon qualifying the learner to contribute to the civilization of the future. Against this perspectve, the special mission of environmental education can be stated in capsule form.

Environmental education should equip the learner with a knowledge of how to analyze interactions among the major components of the total human environment, to the end that the learner becomes able to contribute to the civilization of the future through informed decision-making relevant to that environment.

In order to adequately prepare citizens to meet the long-range planning and decision-making challenges, environmental education will need to develop citizens' skills in: (1) analyzing environmental problems and issues; (2) examining the environmentally related pro and con arguments of a variety of public and private interest groups, labor, business, and government organizations; (3) exploring possible side effects of various environmental problem solutions; (4) predicting both short-term and long-term implications of (alternative) local, state, and national environmental programs; (5) articulating personal goals, desires, and life-style needs in terms of their aggregate (regional, national, or global) implications for energy use and resource allocation; and (6) making long-term life-style decisions that are compatible with the requirements for maintaining an appropriate balance between natural-system and human-system functions.[2]

From these requirements, we can specify environmental education goals and objectives. These are as follows:

Major goals of environmental education:

- To increase awareness and understanding of the fundamental interrelationships and interdependencies between natural and human systems.
- To foster awareness of and concern about economic, social, political, and ecological interdependence in urban and rural areas.
- To foster concern and a sense of responsibility for the environment.
- To provide every person with opportunities to acquire the knowledge, values, attitudes, commitments, and skills needed to protect and improve the environment.
- To increase skills in synthesizing information from a variety of disciplines and knowledge areas in order to develop a more integrated body of knowledge and a world view.
- To increase the capability of understanding and making decisions about key issues affecting the individual, society, and the environment.

. To foster new patterns of behavior of individuals, groups, and society as a whole toward the environment.

Types of environmental education objectives compatible with the major goals:

. Awareness: To help individuals and groups acquire an awareness of and sensitivity to the total environment and its associated problems.

. Attitudes: To help individuals and groups acquire a set of values and feelings of concern for the environment, and the motivation for actively participating in environmental improvement and protection.

. Knowledge: To help individuals and groups gain a variety of experience in and acquire a basic understanding of the environment and its associated problems.

. Skills: To help individuals and groups acquire the skills for identifying and solving or anticipating and preventing environmental problems.

. Participation: To provide individuals and groups with an opportunity to be actively involved in learning about the environment and in working toward the resolution of environmental problems.

Developing capabilities (such as those presented earlier) in our citizens can only occur through well-conceived and meaningful environmental education that is geared to reach people of different ages and at different levels of society. This type of environmental education has the following primary characteristics:

. It is holistic. It considers the environment in its totality-natural and human built, focuses on and clarifies the complex relationships, linkages, and interdependencies between all things-natural and human; emphasizes understanding natural and human systems as complex wholes rather than from narrow or simplistic perspectives.

. It is interdisciplinary. It utilized information from a variety of fields and disciplines (including the natural sciences, social sciences, and humanities) in order to deal adequately with the ecological, social, aesthetic, economic, technological, cultural, and ethical dimensions of environmental issues.

. It is problem and issue focused. It gives emphasis to problem solving and decision-making by presenting real environmental problems or issues that have local, regional, national, or global significance; engages learners in values clarification, problem solving, planning, and decision-making activities that prepare them for dealing with environmental problems and issues that affect individuals and society.

As environmental education is interdisciplinary the many disciplines develop student competencies that contribute to an environmentally literate citizen.

The following examples from the various goal areas are illustrative of how this can occur.

COMMUNICATION SKILLS

Be able to read and listen in order to fulfill personal, vocational and societal responsibilities and needs.

Be able to locate and select appropriate resource materials from libraries and other sources and employ efficient research techniques (read, interpret, analyze and evaluate information).

MATHEMATICS

Demonstrate awareness of the interrelationships among and applications of mathematics to other disciplines.

Be able to organize numerical or verbal information into tables, charts, graphs and maps.

SELF-ESTEEM

Understand their own capacity to accept responsibility and personal commitment.

Understand the implications of their own decision-making.

UNDERSTANDING OTHERS

Be willing to understand and empathize with the feelings, values and viewpoints of others.

Understand that they live in world, national and local communities that are interdependent ecologically, economically, politically, socially and technologically.

CITIZENSHIP

Be aware of the interdependence of world economics as it affects our own economy.

Respect and care for property, both personal and public and promote the conservation of human, national and material resources.

The development of education resources that provide environmental education curricula that embody these characteristics should become a major priority in meeting the environmental education needs of Commonwealth students.

Holistic, interdisciplinary, problem-focused environmental education curricula would therefore need to engage learners in exploring the following:

- Complex, broad-impact energy and environmental issues of concern to national, state, and local leaders and citizens, e.g., electric power generation and environmental safeguards, long-term utilization and conservation of energy resources, optimal use of finite land resources, impact of energy intensive urban growth on the quality of life, energy resource delivery and use.

- Interrelated content areas that address natural and human-built or human-managed systems affected by the above issues, e.g., those specified by the Environmental Education Act, such as human settlements, food production, population dynamics, transportation, land use, and environmental pollution.

- Useful processes that are helpful in understanding and resolving complex energy/environmental issues involving the above content areas, e.g., systems analysis, problem solving, decision-making, life-style assessment, world views and values analyses, net energy and energy quality assessment, planning and policy formation, and futures thinking.

Holistic EE curricula should be so designed that any one or combination of the above content areas or processes may be used as entry points for developing learners' awareness and understanding for broad energy and environmental issues within standard subject matter areas, as well as through special courses and activities. In addition, the selection of useful teaching and learning strategies and materials from those currently available, as well as the development of new ones, should be made on the basis of their compatibility with a holistic EE curriculum design and their utility in addressing the needs, interests, and requirements of the student.

RS/py